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10/705,932	11/13/2003	Chunqiang Tang	200308654-1	6564
22879 7590 04/03/2008 HEWLETT PACKARD COMPANY P O BOX 272400, 3404 E. HARMONY ROAD INTELLECTUAL PROPERTY ADMINISTRATION FORT COLLINS, CO 80527-2400				
EXAMINER PONIKIEWSKI, TOMASZ				
ART UNIT 2165		PAPER NUMBER		
NOTIFICATION DATE 04/03/2008		DELIVERY MODE ELECTRONIC		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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# Office Action Summary

**Application No.**

10/705,932

**Applicant(s)**

TANG ET AL.

**Examiner**

Tomasz Ponikiewski

**Art Unit**

2165

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 10/15/07.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-4, 6-22 and 24 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4, 6-22, 24 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/CDC)
- 4) ☐ Interview Summary (PTO-413)
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_
- Paper No(s)/Mail Date \_\_\_\_\_

### **DETAILED ACTION**

1. The Amendment filed on 10/15/2007 has been received and entered. Claims 5 and 23 have been cancelled, therefore claims 1-4, 6-22 and 24 are pending.

### ***Claim Objections***

2. Claims 1, 14, 18, 22 and 24 are objected to because of the following informalities:

The claims 1, 14, 18 and 22 indicate that key-value pairs are include at least one of objects and addresses for the objects. The specification on page 7 lines 4-8 only states that the key-value pairs include the semantic vector and an address. Appropriate correction is required.

Claim 24 wrongly shows dependency. Claim 23 has been cancelled therefore claim 24 should depend on claim 22 now. Appropriate correction is required.

Claims 1, 14, 18 and 22 are missing the word "the" in front of "...object stored in the peer-to-peer system" and "nodes associated with location in the overlay network..." in claim 1 lines 13 and 18 respectively, lines 14 and 19 in claim 14, lines 10 and 15 in claim 18 and line 10 in claim 22. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 101***

3. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

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4. Claims 14 and 22 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

The claim lack the necessary physical articles or objects to constitute a machine or a manufacture within the meaning of 35 USC 101. They are clearly not a series of steps or acts to be a process nor are they a combination of chemical compounds to be a composition of matter. As such, they fail to fall within a statutory category. They are, at best, functional descriptive material *per se*.

Descriptive material can be characterized as either "functional descriptive material" or "nonfunctional descriptive material." Both types of "descriptive material" are nonstatutory when claimed as descriptive material *per se*, 33 F.3d at 1360, 31 USPQ2d at 1759. When functional descriptive material is recorded on some computer-readable medium, it becomes structurally and functionally interrelated to the medium and will be statutory in most cases since use of technology permits the function of the descriptive material to be realized. Compare *In re Lowry*, 32 F.3d 1579, 1583-84, 32 USPQ2d 1031, 1035 (Fed. Cir. 1994)

Merely claiming nonfunctional descriptive material, i.e., abstract ideas, stored on a computer-readable medium, in a computer, or on an electromagnetic carrier signal, does not make it statutory. See *Diehr*, 450 U.S. at 185-86, 209 USPQ at 8 (noting that the claims for an algorithm in *Benson* were unpatentable as abstract ideas because "[t]he sole practical application of the algorithm was in connection with the programming of a general purpose computer.").

5. Claims 14 and 22 are directed to software only implementation in view of applicant's disclosure. The means for statements could be considered software only. For example in figure 3 the "means for" appear to read on software only.

Claim 22 is directed to "system" that only has software modules; for example: "plurality of nodes overlay network, indices, etc".

***Claim Rejections - 35 USC § 102***

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6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. Claims 1-4, 6-22 and 24 are rejected under 35 U.S.C. 102(e) as being anticipated by Xu et al. (US 7,039,634 B2).

The applied reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

As per claims 1, 14 and 18 Xu et al. is directed to executing a search in a peer-to-peer system, the method comprising:

receiving a query at a destination node (column 4, lines 31-37);

receiving samples from a first set of nodes proximally located to the destination node in an overlay network for the peer-to-peer system, the samples associated with information stored at the proximally located nodes (column 3, lines 16-31; column 4, lines 36-42, wherein "samples" could be any object or information in the system); and

identifying, based on the samples received from the first set of nodes, a first node of the first set of nodes likely storing information associated with objects stored in the peer-to-peer system that are relevant to the query (column 4, lines 39-42).

storing forwarding information for the identified first node of the first set of nodes likely storing information associated with objects stored in the peer-to-peer system that are relevant to the query (column 6, lines 13-17);

generating semantic vectors for objects stored in peer-to-peer system (column 3, line 51);

hashing each of the semantic vectors to generate keys identifying locations in the overlay network to store key-value pairs for the objects, wherein the keys are semantic vectors for objects and the values include at least one of the objects and addresses for the objects (column 3, lines 18-20; column 4, lines 11-16); and

storing the key-value pairs at nodes associated with the locations in the overlay network wherein the stored key-value pairs associated with similar vectors are proximally located in the overlay network (column 4, lines 16-23).

As per claims 2, 15 and 19 Xu et al is directed further comprising:

comparing the query to information stored in the first node; wherein the information stored in the first node is associated with objects stored in the peer-to-peer network (column 9, lines 50-57); and

generating search results including information stored in the first node associated with objects relevant to the query based on the comparison of the query to the information stored in the first node (column 9, lines 50-57).

As per claims 3, 16 and 20 Xu et al is directed to further comprising:  
determining whether a quit threshold has been reached (column 9, lines 66-67);  
transmitting the search results to an initiator of the query in response to the quit threshold being reached (column 9, lines 64-65); and  
performing the following steps in response to the quit threshold not being reached:  
identifying a second node likely storing information associated with objects stored in the peer-to-peer network that are relevant to the query based on samples received from a second set of nodes including the second node, wherein the second set of nodes are nodes proximally located to the first node in the overlay network (column 9, lines 59-64); and  
adding information stored in the second node to the search results; the added information being associated with objects that are relevant to the query (column 9, lines 59-64).

As per claims 4, 17 and 21 Xu et al is directed to wherein the quit threshold is associated with at least one of hops in the overlay network and whether the search

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results can be improved by adding information to the search results from the second node (column 4, lines 23-26).

As per claim 6 Xu et al. is directed to generating the samples for the first set of the nodes as a function of at least one of key-value pair stored at each of the first set of nodes (column 4, lines 1-4).

As per claim 7 Xu et al. is directed to wherein generating the samples comprises:  
generating a destination node semantic vector representative of objects associated with at least one of key-value pairs stored at the destination node and recent queries executed by the destination node (column 3, lines 16-23)

As per claim 8 Xu et al. is directed to wherein identifying, based on the samples received from the first set of nodes, a first node of the first set of nodes likely storing information associated with objects stored in the peer-to-peer network that are relevant to the query comprises:

generating a semantic vector for each of the samples for the first set of nodes (column 5, lines 18-23);

comparing the destination node semantic vector to each of the semantic vectors for the first set of nodes (column 5, lines 45-54); and

identifying one of the semantic vectors for the first set of nodes closest to the destination node semantic vector (column 5, lines 45-54).



As per claim 9 Xu et al. is directed to further comprising:  
identifying lower elements for the semantic vectors (column 5, lines 11-14)  
generating planes in the overlay network associated with the lower elements  
(column 5, lines 11-14);  
performing the steps of claim 1 for each of the plains (see citations above).

As per claim 10 Xu et al. is directed to further comprising:  
storing indices of key-value pairs at the nodes (column 4, lines 20-23),  
replicating an index for a second node in the first node, wherein the second node  
is proximally located to the first node in the overlay network (column 4, lines 20-23); and  
identifying key-value pairs from the replicated index that are relevant to the query  
(column 4, lines 21-22).

As per claim 11 Xu et al. is directed to further comprising:  
storing indices of key-value pairs at the nodes (column 4, lines 20-23),  
in the first node, replicating indices for a plurality of nodes in a region in the  
overlay network including the first node (column 4, lines 20-23); and  
identifying key-value pairs from the replicated indices that are relevant to the  
query (column 4, lines 21-22).

As per claim 12 Xu et al is directed to wherein the first set of nodes are neighbor nodes to the destination node in the overlay network (column 4, lines 23-25).

As per claim 13 Xu et al is directed to wherein the second set of nodes are neighbor nodes to the first node in the overlay network (column 4, lines 23-25).

As per claim 22 Xu et al is directed to a peer-to-peer system comprising:

- a plurality of nodes in the system operating as a search engine operable to execute a query received by the search engine (column 4, lines 32-36);
- an overlay network implemented by the plurality of nodes (column 6, lines 47-48);
- a plurality of indices stored at the plurality of nodes, each index including at least one semantic vector for an object (column 4, lines 20-23); and

each of the semantic vectors is hashed to generate keys identifying location in the overlay network to store key-value pairs for objects (column 3, lines 18-20; column 4, lines 11-16),

wherein the keys are the semantic vectors for the objects and the values include at least one of the objects and addresses for the object (column 3, lines 18-20),

wherein the key-value pairs are stored at nodes associated with the locations in the overlay network, and the stored key-value pairs are associated with similar semantic vectors are proximally located in the overlay network (column 4, lines 16-23; it seems that there should be word "that" included before "proximally located")

wherein a first node in the search engine is configured to receive samples from nodes proximally located to the first node in the overlay network, the first node utilizing the samples to identify an index of one of the other nodes to search in response to receiving the query (column 4, lines 39-42).

As per claim 24 Xu et al is directed to wherein the first node is located in a region in the overlay network and the first node is configured to store indices from nodes in the region, such that the first node is operable to search a plurality of indices likely to include information relevant to the query without forwarding the query to other nodes in the region (column 4, lines 14-23; the word "operable to" should be changed to "configured to").

### ***Response to Arguments***

8. Applicant's arguments with respect to claims 1-4, 6-22, and 24 have been considered but are moot in view of the new ground(s) of rejection.

No arguments were presented.

### ***Conclusion***

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Mahakingam, M, Chungiang Tang, Zhichen Xu "Towards a semantic, deep archival file system" Distributed Computing Systems, 2003. FTDCS 2003. Proceedings.

The Ninth IEEE Workshop on Future Trends teaches semantic vectors in proximal overlay network.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tomasz Ponikiewski whose telephone number is (571) 272-1721. The examiner can normally be reached on 9:00-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christian Chace can be reached on (571)272-4190. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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Unit 2167

/T.P./  
March 17, 2008  
/N. A./

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Primary Examiner, Art Unit 2165

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